

Application No. 10/562,814

AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier.

1-65 (Cancelled)

66. (Withdrawn) A composition comprising:

a plurality of particles including a bioactive component and a cell recognition component, with the particles having an average diameter of less than about 50 nanometers as measured by atomic force microscopy following drying of the particles.

67. (Previously Presented) A composition comprising:

a plurality of particles comprising a surfactant having an HLB value of less than about 6.0 units associated with a bioactive component and either a polymer or a cell recognition component or a combination thereof, with the particles having an average diameter of less than about 50 nanometers as measured by atomic force microscopy of the particles following drying of the particles

68. (Withdrawn) The composition of claim 66 wherein the bioactive component comprises a hydrophilic component.

69. (Withdrawn) The composition of claim 66 wherein the bioactive component comprises a hydrophobic component.

70. (Withdrawn) The composition of claim 66 wherein the bioactive component is a member of the group consisting of peptides, proteins, and carbohydrates.

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71. (Withdrawn) The composition of claim 66 wherein the bioactive component comprises a polynucleic acid, oligonucleotide, antisense molecule, polypeptide or oligopeptide.

72. (Withdrawn) The composition of claim 71 where the polynucleotide is an RNA or DNA sequence of more than 1 nucleotide in either single chain, duplex or multiple chain form, or modified forms thereof

73. (Withdrawn) The composition of claim 66 wherein the bioactive component comprises a member of the group consisting of antigens isolated from pathogens, viral antigens, fungal antigens, parasitic antigens, and inactivated pathogenic organisms.

74. (Withdrawn) The composition of claim 66 wherein the bioactive component is a small molecule or inorganic agent.

75. (Withdrawn) The composition of claim 66 wherein the bioactive component is cisplatin.

76. (Withdrawn) The composition of claim 66 wherein the bioactive component is a detection agent.

77. (Withdrawn) The composition of claim 76 wherein the detection agent is a fluorescent molecule.

78. (Withdrawn) The composition of claim 66 wherein the bioactive component is condensed.

79. (Withdrawn) The composition of claim 66 wherein the bioactive component is a member of the group consisting of aptamers, mini-chromosomes, steroids, adrenergic, adrenocortical steroid, adrenocortical suppressant, aldosterone antagonist, and anabolic agents;

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analeptic, analgesic, anesthetic, anorectic, anti-acne agents; anti-adrenergic, anti-allergic, antiamebic, anti-anemic, and anti-anginal agents; anti-arthritis, anti-asthmatic, anti-atherosclerotic, antibacterial, and anticholinergic agents; anticoagulant, anticonvulsant, antidepressant, antidiabetic, and antidiarrheal agents; antidiuretic, anti-emetic, anti-epileptic, antifibrinolytic, and antifungal agent; antigens, antihemorrhagic, antiinflammatory, antimicrobial, antimigraine, and antimiotic agents; antimycotic, antinauseant, antineoplastic, antineutropenic, and antiparasitic agents; antiproliferative, antipsychotic, antirheumatic, antiseborrheic, and antisecretory agents; antispasmodic, antibrombotic, anti-ulcerative, antiviral and appetite suppressant agents.

80. (Withdrawn) The composition of claim 66 wherein the bioactive component is a member of the group consisting of blood glucose regulator, bone resorption inhibitor, bronchodilator, cardiovascular, and cholinergic agents; fluorescent, free oxygen radical scavenger, gastrointestinal motility effector, glucocorticoid, and hair growth stimulant agent; hemostatic, histamine H<sub>2</sub> receptor antagonists; hormone; hypocholesterolemic, and hypoglycemic agents; hypolipidemic, hypotensive, and imaging agents, immunizing and agonist agents; metals, metal chelates, mood regulators, mucolytic, mydriatic, nasal decongestant; neuromuscular blocking agents; neuroprotective, NMDA antagonist, non-hormonal sterol derivative, peptide nucleic acids, plasminogen activator, and platelet activating factor antagonist agent.

81. (Withdrawn) The composition of claim 66 wherein the bioactive component is a member of the group consisting of platelet aggregation inhibitor, protein antibodies, psychotropic, radioactive, scabicide, and sclerosing agents; sedative, sedative-hypnotic, selective adenosine A1 antagonist, serotonin antagonist, and serotonin inhibitor agent; serotonin receptor antagonist, steroid, thyroid hormone, thyroid hormone, thyroid inhibitor agent; thyromimetic, tranquilizer, amyotrophic lateral sclerosis, cerebral ischemia, Paget's disease agent; unstable angina, vasoconstrictor, vasodilator, wound healing, xanthine oxidase inhibitor agent; and immunological agents.

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82. (Withdrawn) The composition of claim 66 wherein the bioactive component is a combination of two or more bioactive components.

83. (Withdrawn) The composition of claim 66 wherein the cell recognition component is a ligand.

84. (Withdrawn) The composition of claim 66 wherein the cell recognition component comprises peptide hormone, antibody, tenascin, hyaluronan, or polyvinylpyrrolidone, or a fragment thereof.

85. (Withdrawn) The composition of claim 66 wherein the cell-recognition component is a ligand that targets a receptor for tenascin, hyaluronan or polyvinylpyrrolidone, an antigen, a cell surface receptor involved in receptor mediated endocytosis, a growth factor receptor, a cell adhesion molecule, or an integrin.

86. (Withdrawn) The composition of claim 66 wherein the cell-recognition component is a combination of two or more cell recognition components.

87. (Previously Presented) The composition of claim 67 wherein the surfactant is a non-ionic surfactant.

88. (Previously Presented) The composition of claim 67 wherein the surfactant has an HLB value of less than about 5.0 units.

89. (Previously Presented) The composition of claim 67 wherein the surfactant has a critical micelle concentration of less than about 10 micromolar.

90. (Previously Presented) The composition of claim 67 wherein the surfactant is selected from the group consisting of cetyl alcohol, 2, 4, 7, 9-tetramethyl-5-decyn-4, 7-diol,

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molecules containing an acetylenic diol portion, and blends of 2, 4, 7, 9-tetramethyl-5-decyn-4, 7-diol.

91. (Previously Presented) The composition of claim 67 wherein the surfactant is a combination of two or more surfactants.

92. (Previously Presented) The composition of claim 67 further comprising a biocompatible oil or a combination of two or more biocompatible oils.

93. (Previously Presented) The composition of claim 67 further comprising a water-miscible solvent or a combination of water-miscible solvents.

94. (Previously Presented) The composition of claim 67, further comprising a cation chosen from the group consisting of  $\text{Ni}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Al}^{3+}$ ,  $\text{Be}^{2+}$ ,  $\text{Li}^+$ ,  $\text{Ba}^{2+}$ , and  $\text{Gd}^{3+}$ , and combinations thereof.

95. (Previously Presented) The composition of claim 67 wherein the polymer is an iontophoretic polymer.

96. (Previously Presented) The composition of claim 67 wherein the polymer is a hydrophobic polymer.

97. (Previously Presented) The composition of claim 67 wherein the polymer is a hydrophilic polymer.

98. (Previously Presented) The composition of claim 67 wherein the polymer is chosen from the group consisting of polyamides, polycarbonates, polyalkylenes, polyalkylene glycols, polyalkylene oxides, polyalkylene terephthalates, polyvinyl alcohols, polyvinyl ethers, polyvinyl esters, polyvinyl halides, polyvinylpyrrolidone, polyglycolides, polysiloxanes,

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polyurethanes and copolymers thereof, alkyl cellulose, hydroxyalkyl celluloses, cellulose ethers, cellulose esters, nitro celluloses, polymers of acrylic and methacrylic esters, methyl cellulose, ethyl cellulose, hydroxypropyl cellulose, hydroxy-propyl methyl cellulose, hydroxybutyl methyl cellulose, cellulose acetate, cellulose propionate, cellulose acetate butyrate, cellulose acetate phthalate, carboxylethyl cellulose, cellulose triacetate, and cellulose sulphate sodium salt.

99. (Previously Presented) The composition of claim 67 wherein the polymer is chosen from the group consisting of poly(methyl methacrylate), poly(ethylmethacrylate), poly(butylmethacrylate), poly(isobutylmethacrylate), poly(hexylmethacrylate), poly(isodecylmethacrylate), poly(lauryl methacrylate), poly(phenyl methacrylate), poly(methyl acrylate), poly(isopropyl acrylate), poly(isobutyl acrylate), poly(octadecyl acrylate), polyethylene, polypropylene poly(ethylene glycol), poly(ethylene oxide), and poly(ethylene terephthalate).

100. (Previously Presented) The composition of claim 67 wherein the polymer is chosen from the group consisting of poly(vinyl alcohols), poly(vinyl acetate), poly vinyl chloride polystyrene, polyvinylpyrrolidone, polyhyaluronic acids, casein, gelatin, glutin, polyanhydrides, polyacrylic acid, alginate, chitosan, poly(methyl methacrylates), poly(ethyl methacrylates), poly(butylmethacrylate), poly(isobutylmethacrylate), poly(hexylmethacrylate), poly(isodecyl methacrylate), poly(lauryl methacrylate), poly(phenyl methacrylate), poly(methyl acrylate), poly(isopropyl acrylate), poly(isobutyl acrylate), and poly(octadecyl acrylate).

101. (Previously Presented) The composition of claim 67 wherein the hydrophilic polymer is a member of the group consisting of proteinaceous materials, peptides, carbohydrates.

102. (Previously Presented) The composition of claim 67 wherein the polymer is a combination of two or more polymers.

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103. (Withdrawn) A method of delivering a bioactive component to a target cell, the method comprising exposing a cell to the composition of claim 66 that binds to a targeted receptor.

104. (Withdrawn) The method of claim 103 wherein the cell is a cancer cell or an antigen presenting cell.

105. (Withdrawn) A method of delivering a bioactive component to a cell having caveolae, the method comprising exposing a cell to the composition of claim 66 that binds to a targeted receptor, wherein the composition is passable through cellular caveolae for delivery of the bioactive component.

106. (Withdrawn) The method of claim 105 wherein the cell is a cancer cell or an antigen presenting cell.

107. (Withdrawn) The composition of claim 66, wherein the plurality of particles is associated with the cell.

108. (Withdrawn) A method of transforming a cell, the method comprising exposing the cell to the composition of claim 66.

109. (Withdrawn) A method of delivering a bioactive component across keratinized barrier epithelia to a cell, the method comprising introducing the composition of claim 66 at a position that is separated from the cell by a keratinized barrier epithelium, wherein at least a portion of the plurality of particles passes through the keratinized barrier epithelium to the cell.

110. (Withdrawn) The method of claim 109 wherein the bioactive component is delivered transcutaneously.

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111. (Withdrawn) The method of claim 109 wherein the composition of claim 66 is prepared as a medicament, and the medicament is administered to a patient.

112. (Withdrawn) A medicament comprising the composition of claim 66.

113. (Withdrawn) The medicament of claim 112 further comprising a form selected from the group consisting of granules, tablets, pellets, films, oral, intravenous, subcutaneous, intraperitoneal, intrathecal, intramuscular, inhalation, topical, transdermal, suppository, pessary, intra urethral, intraportal, intraocular, transtympanic, intrahepatic, intra-arterial, intrathecal, transmucosal, coatings, buccal, and combinations thereof.

114. (Withdrawn) A method of delivering a medicament to a patient, wherein the composition of claim 112 is administered to the patient by oral, intravenous, subcutaneous, intraperitoneal, intrathecal, intramuscular, inhalation, topical, transdermal, suppository, pessary, intra urethral, intraportal, intraocular, transtympanic, intrahepatic, intra-arterial, intrathecal, transmucosal, coatings, or buccal, or combinations thereof.

115. (Withdrawn) A matrix for binding the particles of composition 66, the matrix comprising the particles and a binder.

116. (Withdrawn) A method of delivering a bioactive component to a cell having caveolae, the method comprising: associating the bioactive component with an organic functional component in vitro to make an association of the bioactive component and the organic functional composition, wherein the association is passable through cellular caveolae for delivery of the medical agent.

117. (Withdrawn) The method of claim 116 wherein the association of the bioactive component and the organic functional component has a diameter of less than about 50

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nanometers as measured by atomic force microscopy following drying of the association of the agent and the functional composition.

118. (Withdrawn) The method of claim 116 further comprising exposing the association of the bioactive component and the organic functional component to the cell.

119. (Withdrawn) The method of claim 116 further comprising administering a medicament to a patient, the medicament comprising the association of the bioactive component and the organic functional component.

120. (Withdrawn) The method of claim 116 wherein the association of the bioactive component and the organic functional component comprises a particle.

121. (Withdrawn) The method of claim 120 wherein the particle has a diameter of less than about 50 nanometers as measured by atomic force microscopy of the particles following drying of the particles.

122. (Withdrawn) The method of claim 120 wherein the particle further comprises a surfactant having an HLB value of less than about 6.0 units.

123. (Withdrawn) The method of claim 122 further comprising exposing the particle to the cell.

124. (Withdrawn) The method of claim 116 wherein the bioactive component is a combination of bioactive components.

125. (Withdrawn) The method of claim 116 wherein the bioactive component is a detection agent or a combination of detection agents.

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126. (Withdrawn) The method of claim 116 wherein the bioactive component is a member of the group consisting of peptides, proteins, and carbohydrates.

127. (Withdrawn) The method of claim 116 wherein the bioactive component comprises a fragment of a nucleic acid that comprises a nucleic acid sequence.

128. (Withdrawn) The method of claim 116 wherein the organic functional component comprises a surfactant or a combination of surfactants.

129. (Withdrawn) The method of claim 116 wherein the organic functional component comprises a surfactant or a combination of surfactants and a hydrophilic polymer or a combination of hydrophilic polymers.

130. (Withdrawn) The method of claim 116 wherein the organic functional component comprises carbon and hydrogen.

131. (Withdrawn) The method of claim 116 wherein the association is introduced at a position that is separated from the cell by keratinized barrier epithelia, and the association passes through the keratinized barrier epithelia to the cell.

132. (Withdrawn) The method of claim 131 further comprising exposing the cell to the association of the bioactive component and the organic functional component.